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EXAMINER	
CUTLER, ALBERT H	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/809,812	KANAI, KUNIHIKO	
	Examiner	Art Unit	
	ALBERT H. CUTLER	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 September 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-11 and 15-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-11 and 15-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is responsive to communication filed on September 4, 2008.

Response to Arguments

2. Applicant's arguments filed September 4, 2008 have been fully considered but they are not persuasive.

3. Applicant argues, with respect to claims 1, 7 and 15, that Kakiuchi does not teach that the multiple image data is obtained while changing the focal length.

4. The Examiner respectfully disagrees. Column 4, lines 12-15 and step 102 of figure 5a were previously cited pertaining to the obtaining of multiple image data. Column 5, lines 17-49 were also cited pertaining to the changing of the focal length while obtaining the multiple image data. Step 108 of figure 5B and step 113 of figure 5C are similar to step 102 of figure 5A (see column 5, lines 23-25 and lines 46-47). The focal length is changed in step 106 of figure 5B and step 111 of figure 5C. As a whole, figures 5A-5C teach the obtaining of multiple image data (steps 102, 108 and 113) while changing the focal length (steps 106 and 111). There is nothing in the claims that requires the lens to be in motion while the multiple image data is obtained.

5. Applicant argues, with respect to claims 1 and 7, that Kakiuchi does not teach of calculating a focal length from the obtained multiple image data using a peak position corresponding to a position of a peak value of contrast evaluated values of the obtained multiple image data (comprising obtained brightness data and a plurality of obtained color data).

6. The Examiner respectfully disagrees. As previously recited by the Examiner, “See column 5, lines 1-7. The AF signal of the color having the highest contrast (i.e. a peak value of contrast evaluated values) is used to perform auto-focus (i.e. to calculate a focal length). The data of the color having the highest contrast is obtained from among the multiple image data of all the different colors. See step 105 for choosing which color data to use, and steps 106 and 111 for calculating the focal length.) and a peak position corresponding to a position of the peak value (In steps 106 and 111, the lens is moved in order to find a position with an optimal degree of focus for the multiple image data having the peak value of contrast (i.e. either the G, Mg, Ye or Cy data). Movement of the lens is stopped when it is determined that the lens is within a focus allowable range (i.e. at a peak position), column 5, lines 62-65. The focal length corresponds to the peak position calculated in figures 5A-5C."

7. The optimal focal length (i.e. a focal length) is calculated through the entirety of the method of figures 5A-5C. Such calculation involves the calculation of auto-focus signals (steps 104, 109 and 114), and calculating whether subsequent auto-focus signals are higher than previous auto-focus signals (steps 110 and 115), for instance. The Examiner maintains that the focus allowable range taught by Kakiuchi corresponds to the claimed “a peak position”. The finding of the peak position is detailed in column 5, lines 32-65. This involves a forward lens movement until the peak is passed, and then a smaller reverse lens movement to move the lens back to the peak.

8. Applicant argues, with respect to claim 15, that one of ordinary skill in the art would not want to modify Kakiuchi as urged by the Examiner in view of Rosenqvist et al.

Applicant argues that adding the teachings of Rosenqvist et al. to Kakiuchi would create a more expensive system, contrary to the low-cost system cited as motivation by the Examiner.

9. The Examiner respectfully disagrees. The Examiner maintains that it would have been obvious to a person having ordinary skill in the art at the time of the invention to calculate separate focal lengths and capture images at said separate focal lengths as taught by Rosenqvist et al. by using the contrast of each color component as taught by Kakiuchi for the benefit of achieving a low-cost system which enables the capture of sharper images by compensating for different wavelengths of captured color components (Rosenqvist et al., column 2, lines 8-32, lines 42-43, column 4, lines 41-67). The capture of sharper images due to the nature of having each color component captured at its optimal focal length is the benefit of Rosenqvist. The fact that this can be done at a low cost (i.e. without adding a large cost to the camera) is simply an added benefit.

10. Applicant argues that Rosenqvist et al. teaches obtaining ("grabbing") a red color image, a blue color image, and a green color image sequentially from an RGB camera. See 4:51-67. This cannot be read on obtaining "multiple image data comprising brightness data and a plurality of color data" in previously presented claim 1. The red color image, the blue color image, and the green color image are not "a plurality of color data" as previously presented claim 1.

11. As Rosenqvist et al. is not applied in the rejection of claim 1, this is a moot point. Furthermore, the claims to which Rosenqvist et al. is applied (i.e. claims 15 and 16) do

not disclose obtaining "multiple image data comprising brightness data and a plurality of color data".

12. Applicant argues that in Rosenqvist et al., image grabbing of the red color image, the blue color image, and the green color image is to allow use of a non-color compensated lens, thereby lowering the cost of the device. See 4:51-67. Such a teaching mitigates against combining Rosenqvist et al. with Kakiuchi as the Examiner has done.

13. The Examiner respectfully disagrees. Rosenqvist et al. teaches the use of a “good color compensated objective”, and not the alleged non-color compensated lens (column 4, lines 51-67). Furthermore, lowering the cost of a device is a benefit, and not a detriment.

14. Applicant argues that in Rosenqvist et al., auto focusing must be performed between image grab. See 5:12-20. Thus, image grabbing is not obtained "while changing the focal length" as the Examiner has stated.

15. The Examiner respectfully disagrees. If the focal length is changed between image grabs, then the image grabs can be considered to be performed while changing the focal length. There is nothing in the claims that requires the lens to be in motion while the multiple image data is obtained.

16. Applicant argues that for these and other reasons provided in the earlier Amendment (incorporated herein) filed February 29, 2008, Rosenqvist et al. should not be combined with Kakiuchi.

17. The Examiner points out that the reply filed February 29, 2008 contains no reasons why Rosenqvist et al. should not be combined with Kakiuchi, and that no reasons would be expected as Kakiuchi was not used in the rejection filed prior to the reply filed February 29, 2008. Furthermore, in the non-final rejection filed immediately prior to the reply filed February 29, 2008, Rosenqvist was used as a primary reference, and not as a secondary reference in combination.

18. In response to applicant's arguments against the references individually (i.e. the arguments filed February 29, 2008 with regards to Rosenqvist et al.), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

19. Therefore, the rejection is maintained by the Examiner.

Claim Rejections - 35 USC § 102

20. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

21. Claims 1, 4, 7, 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Kakiuchi (US Patent 5,835,143).

22. The response to Applicant's arguments, as illustrated above, is hereby incorporated into the rejection of claims 1, 4, 7, 17 and 18 by reference.

Consider claim 1, Kakiuchi teaches:

A method of detecting a focal length (Figures 5A, 5B, 5C, 6, and 7, column 4, line 8 through column 5, line 65), comprising:

obtaining, while changing the focal length of an optical system, multiple image data comprising brightness data and a plurality of color data (A plurality of color data is obtained, including green, magenta, yellow, and cyan data, column 4, lines 12-15, step 102, figure 5a. This color data is obtained while changing the focal length in steps 106 and 111 of figures 5B and 5C. See column 5, lines 17-49. Color signals G, Mg, Ye, and Cy are stored in memory when the focal length is changed. A change in luminance (i.e. brightness data) is also obtained column 3, line 57 through column 4, line 7, figure 4.); and

calculating a focal length from the obtained multiple image data by using a peak value of contrast evaluated values of said multiple image data (See column 5, lines 1-7. The AF signal of the color having the highest contrast (i.e. a peak value of contrast evaluated values) is used to perform auto-focus (i.e. to calculate a focal length). The data of the color having the highest contrast is obtained from among the multiple image data of all the different colors. See step 105 for choosing which color data to use, and steps 106 and 111 for calculating the focal length.) and a peak position corresponding to a position of the peak value (In steps 106 and 111, the lens is moved in order to find a position with an optimal degree of focus for the multiple image data having the peak value of contrast (i.e. either the G, Mg, Ye or Cy data). Movement of the lens is stopped when it is determined that the lens is within a focus allowable range (i.e. at a peak

position), column 5, lines 62-65. The focal length corresponds to the peak position calculated in figures 5A-5C.).

Consider claim 4, and as applied to claim 1 above, Kakiuchi teaches:

A method of detecting a focal length as claimed in claim 1, further comprising:

providing a photographing mode for calculating a focal length by using only image data that consists of color data of a specific color selected based on a subject (Color data consisting of a specific color is used to calculate the focal length in steps 106 and 111. That specific color is chosen based on the degree of contrast, column 5, lines 1-7, step 105. Because the degree of contrast of the different colors is based on the acquired color image data, the color data chosen to calculate the focal length is based on the subject.).

Consider claim 7, Kakiuchi teaches:

A focusing device (figure 1), comprising:

an image pickup device (CCD, 21),

an optical system (lens, 11) for forming an image on said image pickup device (21),

an optical system driver (motor, 12) for changing the focal length of said optical system (column 2, lines 61-65), and

an image processor (10) for processing image data output from said image pickup device (column 3, lines 21-24) and controlling said optical system driver (column 2, lines 61-65), wherein

the image processor (10) is adapted to:

while changing the focal length of said optical system, obtain multiple image data selected from among image data of brightness data and a plurality of color data (A plurality of color data is obtained, including green, magenta, yellow, and cyan data, column 4, lines 12-15, step102, figure 5a. This color data is obtained while changing the focal length in steps 106 and 111 of figures 5B and 5C. See column 5, lines 17-49. Color signals G, Ng, Ye, and Cy are stored in memory when the focal length is changed.), and

calculate a focal length from the obtained multiple image data by using the peak value of contrast evaluated values of said multiple image data (See column 5, lines 1-7. The AF signal of the color having the highest contrast (i.e. a peak value of contrast evaluated values) is used to perform auto-focus (i.e. to calculate a focal length). The data of the color having the highest contrast is obtained from among the multiple image data of all the different colors. See step 105 for choosing which color data to use, and steps 106 and 111 for calculating the focal length.) and a peak position corresponding to a position of the peak value (In steps 106 and 111, the lens is moved in order to find a position with an optimal degree of focus for the multiple image data having the peak value of contrast (i.e. either the G, Mg, Ye or Cy data). Movement of the lens is stopped when it is determined that the lens is within a focus allowable range (i.e. at a peak

position), column 5, lines 62-65. The focal length corresponds to the peak position calculated in figures 5A-5C.).

Consider claim 17, Kakiuchi teaches:

A method of detecting a focal length (Figures 5A, 5B, 5C, 6, and 7, column 4, line 8 through column 5, line 65), comprising:

determining by image processing, during changing the focal length of an optical system, and not before such changing, multiple image data comprising brightness data and a plurality of color data (A plurality of color data is obtained (i.e. determined), including green, magenta, yellow, and cyan data, column 4, lines 12-15, step 102, figure 5a. This color data is obtained while changing the focal length in steps 106 and 111 of figures 5B and 5C. See column 5, lines 17-49. Color signals G, Mg, Ye, and Cy are stored in memory when the focal length is changed. A change in luminance (i.e. brightness data) is also obtained column 3, line 57 through column 4, line 7, figure 4. Column 5, lines 17-49 pertain to the changing of the focal length while obtaining the multiple image data. Step 108 of figure 5B and step 113 of figure 5C are similar to step 102 of figure 5A (see column 5, lines 23-25 and lines 46-47). The focal length is changed in step 106 of figure 5B and step 111 of figure 5C. As a whole, figures 5A-5C teach the obtaining of multiple image data (steps 102, 108 and 113) while changing the focal length (steps 106 and 111). In steps 108 and 113, the multiple image data is determined during the changing of the focal length and not before.); and

calculating a focal length from the obtained multiple image data by using a peak value of contrast evaluated values of said obtained multiple image data (See column 5, lines 1-7. The AF signal of the color having the highest contrast (i.e. a peak value of contrast evaluated values) is used to perform auto-focus (i.e. to calculate a focal length). The data of the color having the highest contrast is obtained from among the multiple image data of all the different colors. See step 105 for choosing which color data to use, and steps 106 and 111 for calculating the focal length.) and using a peak position corresponding to a position of said peak value of contrast (In steps 106 and 111, the lens is moved in order to find a position with an optimal degree of focus for the multiple image data having the peak value of contrast (i.e. either the G, Mg, Ye or Cy data). Movement of the lens is stopped when it is determined that the lens is within a focus allowable range (i.e. at a peak position), column 5, lines 62-65. The focal length corresponds to the peak position calculated in figures 5A-5C.).

The optimal focal length (i.e. a focal length) is calculated through the entirety of the method of figures 5A-5C. Such calculation involves the calculation of auto-focus signals (steps 104, 109 and 114), and calculating whether subsequent auto-focus signals are higher than previous auto-focus signals (steps 110 and 115), for instance. The Examiner maintains that the focus allowable range taught by Kakiuchi corresponds to the claimed “a peak position”. The finding of the peak position is detailed in column 5, lines 32-65. This involves a forward lens movement until the peak is passed, and then a smaller reverse lens movement to move the lens back to the peak.

Consider claim 18, Kakiuchi teaches:

A focusing device (figure 1), comprising:

an image pickup device (CCD, 21),

an optical system (lens, 11) for forming an image on said image pickup device (21),

an optical system driver (motor, 12) for changing the focal length of said optical system (column 2, lines 61-65), and

an image processor (10) for processing image data output from said image pickup device (column 3, lines 21-24) and controlling said optical system driver (column 2, lines 61-65), wherein

the image processor (10) is adapted to:

during changing the focal length of said optical system, and not before such changing, determining multiple image data selected from among image data of brightness data and a plurality of color data (A plurality of color data is obtained (i.e. determined), including green, magenta, yellow, and cyan data, column 4, lines 12-15, step102, figure 5a. This color data is obtained while changing the focal length in steps 106 and 111 of figures 5B and 5C. See column 5, lines 17-49. Color signals G, Ng, Ye, and Cy are stored in memory when the focal length is changed. Column 5, lines 17-49 pertain to the changing of the focal length while obtaining the multiple image data. Step 108 of figure 5B and step 113 of figure 5C are similar to step 102 of figure 5A (see column 5, lines 23-25 and lines 46-47). The focal length is changed in step 106 of figure 5B and step 111 of figure 5C. As a whole, figures 5A-5C teach the obtaining of

multiple image data (steps 102, 108 and 113) while changing the focal length (steps 106 and 111). In steps 108 and 113, the multiple image data is determined during the changing of the focal length and not before.), and

calculate a focal length from the obtained multiple image data using a peak value of contrast evaluated values of said multiple image data (See column 5, lines 1-7. The AF signal of the color having the highest contrast (i.e. a peak value of contrast evaluated values) is used to perform auto-focus (i.e. to calculate a focal length). The data of the color having the highest contrast is obtained from among the multiple image data of all the different colors. See step 105 for choosing which color data to use, and steps 106 and 111 for calculating the focal length.) and using a peak position which corresponds to a position of the peak value of contrast (In steps 106 and 111, the lens is moved in order to find a position with an optimal degree of focus for the multiple image data having the peak value of contrast (i.e. either the G, Mg, Ye or Cy data). Movement of the lens is stopped when it is determined that the lens is within a focus allowable range (i.e. at a peak position), column 5, lines 62-65. The focal length corresponds to the peak position calculated in figures 5A-5C.).

The optimal focal length (i.e. a focal length) is calculated through the entirety of the method of figures 5A-5C. Such calculation involves the calculation of auto-focus signals (steps 104, 109 and 114), and calculating whether subsequent auto-focus signals are higher than previous auto-focus signals (steps 110 and 115), for instance. The Examiner maintains that the focus allowable range taught by Kakiuchi corresponds to the claimed “a peak position”. The finding of the peak position is detailed in column

5, lines 32-65. This involves a forward lens movement until the peak is passed, and then a smaller reverse lens movement to move the lens back to the peak.

Claim Rejections - 35 USC § 103

23. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

24. Claims 2, 5(1), 5(2), 5(4) and 10(7) are rejected under 35 U.S.C. 103(a) as being unpatentable over Kakiuchi in view of Watanabe et al.(US Patent Application Publication 2003/0063212).

25. The response to Applicant's arguments, as illustrated above, is hereby incorporated into the rejection of claims 2, 5(1), 5(2), 5(4) and 10(7) by reference.

Consider claim 2, and as applied to claim 1 above, Kakiuchi teaches of capturing multiple image data containing data of multiple colors, and automatically selecting color data to be used for calculating a focal point (see claim 1 rationale). However, Kakiuchi does not explicitly teach of applying weighting factors.

Watanabe et al. is similar to Kakiuchi in that Watanabe et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figure 1. Watanabe et al. is further similar in that focusing conditions are changed using the contrast method (paragraph 0005).

However, in addition to the teachings of Kakiuchi, Watanabe et al. teach of applying weighting factors based on the conditions set for each image data (Step 116, figure 3, paragraphs 0087-0092, 0161-0162).

Therefore, it would have been obvious to a person having ordinary skill at the time of the invention to using weighting values as taught by Watanabe et al. to weight the evaluated values of each respective color data as taught by Kakiuchi in order to sustain a high level of focal adjustment accuracy by calculating the correct focus evaluation values in differing image capturing conditions (Watanabe et al., paragraph 0014).

Consider claim 5, and as applied to claim 1 above, Kakiuchi does not explicitly teach of emitting auxiliary light with given color data when the image data is obtained, and performing weighting of the evaluated values of the color image data based on the color data of the emitted auxiliary light.

Watanabe et al. is similar to Kakiuchi in that Watanabe et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figure 1. Watanabe et al. is further similar in that focusing conditions are changed using the contrast method (paragraph 0005).

However, Watanabe et al. teach of emitting auxiliary light, paragraph 0072. An auxiliary light (122, figure 1) is used to illuminate the subject when the brightness level is low in order to perform correct auto-focus. The auxiliary light inherently produces

given color data, and illuminates a subject when the brightness is low so that auto-focus image data (i.e. the image data) can be obtained.

Watanabe et al. further teach of performing weighting of the evaluated values of the color image data (Step 116, figure 3, paragraphs 0087-0092, 0161-0162). Because the auto-focus data is obtained while the illumination auxiliary light is on, the evaluation values of the color image data are based on the color data of the emitted auxiliary light.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to weight the evaluation values and use an auxiliary light as taught by Watanabe et al. in the method for detecting a focal length taught by Kakiuchi in order to sustain a high level of focal adjustment accuracy by calculating the correct focus evaluation values in differing image capturing conditions (Watanabe et al., paragraph 0014) and compensate for low lighting conditions (Watanabe et al., paragraph 0072).

Consider claim 5, and as applied to claim 4 above, Kakiuchi does not explicitly teach of emitting auxiliary light with given color data when the image data is obtained, and performing weighting of the evaluated values of the color image data based on the color data of the emitted auxiliary light.

Watanabe et al. is similar to Kakiuchi in that Watanabe et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figure 1. Watanabe et al. is further similar in that focusing conditions are changed using the contrast method (paragraph 0005).

However, Watanabe et al. teach of emitting auxiliary light, paragraph 0072. An auxiliary light (122, figure 1) is used to illuminate the subject when the brightness level is low in order to perform correct auto-focus. The auxiliary light inherently produces given color data, and illuminates a subject when the brightness is low so that auto-focus image data (i.e. the image data) can be obtained.

Watanabe et al. further teach of performing weighting of the evaluated values of the color image data (Step 116, figure 3, paragraphs 0087-0092, 0161-0162). Because the auto-focus data is obtained while the illumination auxiliary light is on, the evaluation values of the color image data are based on the color data of the emitted auxiliary light.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to weight the evaluation values and use an auxiliary light as taught by Watanabe et al. in the method for detecting a focal length taught by Kakiuchi in order to sustain a high level of focal adjustment accuracy by calculating the correct focus evaluation values in differing image capturing conditions (Watanabe et al., paragraph 0014) and compensate for low lighting conditions (Watanabe et al., paragraph 0072).

Consider claim 5, and as applied to claim 2 above, Watanabe et al. further teach of emitting auxiliary light, paragraph 0072. An auxiliary light (122, figure 1) is used to illuminate the subject when the brightness level is low in order to perform correct auto-focus. The auxiliary light inherently produces given color data, and illuminates a subject

when the brightness is low so that auto-focus image data (i.e. the image data) can be obtained.

Watanabe et al. further teach of performing weighting of the evaluated values of the color image data (Step 116, figure 3, paragraphs 0087-0092, 0161-0162). Because the auto-focus data is obtained while the illumination auxiliary light is on, the evaluation values of the color image data are based on the color data of the emitted auxiliary light.

Consider claim 10, and as applied to claim 7 above, Kakiuchi does not explicitly teach of emitting auxiliary light with given color data when the image data is obtained.

Watanabe et al. is similar to Kakiuchi in that Watanabe et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figure 1. Watanabe et al. is further similar in that focusing conditions are changed using the contrast method (paragraph 0005).

However, Watanabe et al. teach of emitting auxiliary light, paragraph 0072. An auxiliary light (122, figure 1) is used to illuminate the subject when the brightness level is low in order to perform correct auto-focus. The auxiliary light inherently produces given color data, and illuminates a subject when the brightness is low so that auto-focus image data (i.e. the image data) can be obtained.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to use an auxiliary light as taught by Watanabe et al. in the method for detecting a focal length taught by Kakiuchi in order to sustain a high level of focal adjustment accuracy by calculating the correct focus evaluation values in differing

image capturing conditions (Watanabe et al., paragraph 0014) and compensate for low lighting conditions (Watanabe et al., paragraph 0072).

26. Claims 6(1), 6(4), 8, 9, 11(7), 11(8) and 11(9) are rejected under 35 U.S.C. 103(a) as being unpatentable over Kakiuchi in view of Omata et al.(US Patent 6,067,114).

27. The response to Applicant’s arguments, as illustrated above, is hereby incorporated into the rejection of claims 6(1), 6(4), 8, 9, 11(7), 11(8) and 11(9) by reference.

Consider claim 6, and as applied to claim 1 above, Kakiuchi teaches of detecting focal lengths based on multiple image data, specifically detecting the focal length based on the image data which has the peak contrast value (see claim 1 rationale). However, Kakiuchi does not explicitly teach of a plurality of image detecting areas adjacent to one another.

Omata et al. is similar to Kakiuchi in that Omata et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figures 1 and 2. Omata et al. is further similar in that brightness data from the image sensor can be used for focusing (column 1, lines 45-65).

Omata et al. teach setting a plurality of image detecting areas adjacent to one another in obtained image data (see figure 5, column 3, lines 34-37),

calculating a partial focal length for each image detecting area (See column 3, lines 39-46, column 5, lines 8-18. A focus evaluation value (i.e. partial focal length) is calculated for each image detecting area.),

calculating the reliability of each image detecting area based on the position at which said peak value has been recorded moving across the multiple image data (The reliability of each image detecting area is determined by comparing the image detecting area to the surrounding image detecting areas, column 5, lines 18-44. See figure 6, block g (3,4) is judged reliable and used for focal length detection if the pixels around it are of the same object distance. This position correlates to the position of the maximum focus evaluation value (i.e. peak value), column 5, lines 32-36.), and

selecting a focal length from a group consisting of said partial focal lengths (column 5, lines 18-44) and at least one given focal length (A predetermined (i.e. given) focal length may be used to detect a depth of field, column 3, line 67 through column 4, line 3.), said focal length selected based on the reliability and the evaluated values of each respective image detecting area (See column 5, lines 18-44. Each image detecting area is used to establish a focus evaluation value, and these values are compared to determine the reliability of the areas and use the appropriate one containing the main subject.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to divide an image into a plurality of image detecting areas adjacent to one another and use the plurality of areas to determine focus values and reliability as taught by Omata et al., with the multiple image data captured by Kakiuchi

for the benefit of being able to accurately detect a compositional change in an image so that a continuous focus can be achieved on a main object which an operator intends to focus (Omata et al., column 1, line 66 through column 2, line 2).

Consider claim 6, and as applied to claim 4 above, Kakiuchi teaches of detecting focal lengths based on multiple image data, specifically detecting the focal length based on the image data which has the peak contrast value (see claim 1 rationale). However, Kakiuchi does not explicitly teach of a plurality of image detecting areas adjacent to one another.

Omata et al. is similar to Kakiuchi in that Omata et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figures 1 and 2. Omata et al. is further similar in that brightness data from the image sensor can be used for focusing (column 1, lines 45-65).

Omata et al. teach setting a plurality of image detecting areas adjacent to one another in obtained image data (see figure 5, column 3, lines 34-37),

calculating a partial focal length for each image detecting area (See column 3, lines 39-46, column 5, lines 8-18. A focus evaluation value (i.e. partial focal length) is calculated for each image detecting area.),

calculating the reliability of each image detecting area based on the position at which said peak value has been recorded moving across the multiple image data (The reliability of each image detecting area is determined by comparing the image detecting area to the surrounding image detecting areas, column 5, lines 18-44. See figure 6,

block g (3,4) is judged reliable and used for focal length detection if the pixels around it are of the same object distance. This position correlates to the position of the maximum focus evaluation value (i.e. peak value), column 5, lines 32-36.), and

selecting a focal length from a group consisting of said partial focal lengths (column 5, lines 18-44) and at least one given focal length (A predetermined (i.e. given) focal length may be used to detect a depth of field, column 3, line 67 through column 4, line 3.), said focal length selected based on the reliability and the evaluated values of each respective image detecting area (See column 5, lines 18-44. Each image detecting area is used to establish a focus evaluation value, and these values are compared to determine the reliability of the areas and use the appropriate one containing the main subject.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to divide an image into a plurality of image detecting areas adjacent to one another and use the plurality of areas to determine focus values and reliability as taught by Omata et al., with the multiple image data captured by Kakiuchi for the benefit of being able to accurately detect a compositional change in an image so that a continuous focus can be achieved on a main object which an operator intends to focus (Omata et al., column 1, line 66 through column 2, line 2).

Consider claim 8, and as applied to claim 7 above, Kakiuchi et al. teach of using respective color image data to set a focal length (see claim 7 rationale). However, Kakiuchi do not explicitly teach that the focus device is provided with an operating

means which enables the operator to perform by the operator's discretion weighting of evaluated values of image data.

Omata et al. is similar to Kakiuchi in that Omata et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figures 1 and 2. Omata et al. is further similar in that brightness data from the image sensor can be used for focusing (column 1, lines 45-65).

However, in addition to the teachings of Kakiuchi, Omata et al. teach of breaking the image into sub-image areas and obtaining focus evaluation values for each sub image area (see figure 8). Omata et al. further teach the focus device is provided with an operating means which enables the operator to perform by the operator's discretion weighting of evaluated values of image data (Omata et al. teach that weights are assigned based on the composition of the image, column 5, line 55 through column 6, line 55. The user chooses a main object and the focusing lens is focused on the main object, column 4, lines 4-19. Therefore, because the user (i.e. operator) determines the main object (i.e. performs discretion), and the evaluation values are weighted according to what the main object is, an operating means of the camera enables the operator to perform the operator's discretion weighting of evaluated values of image data.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to weight the focus evaluation values taught by Kakiuchi using the weighting method taught by Omata et al. for the benefit of being able to accurately detect a compositional change in an image so that a continuous focus can be

achieved on a main object which an operator intends to focus (Omata et al., column 1, line 66 through column 2, line 2).

Consider claim 9, and as applied to claim 7 above, Kakiuchi et al. teach of an image processor, and of using respective color image data to set a focal length (see claim 7 rationale). However, Kakiuchi do not explicitly teach that the image processor is adapted to automatically perform weighting of the evaluated values of each image data.

Omata et al. is similar to Kakiuchi in that Omata et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figures 1 and 2. Omata et al. is further similar in that brightness data from the image sensor can be used for focusing (column 1, lines 45-65).

However, in addition to the teachings of Kakiuchi, Omata et al. teach of breaking the image into sub-image areas and obtaining focus evaluation values for each sub image area (see figure 8). Omata et al. further teach that the image processor is adapted to automatically perform weighting of the evaluated values of each image data (Weighting is performed on evaluated values based on the position in the image (i.e. the conditions set for each image data), column 5, line 55 through column 6, line 55.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to weight the focus evaluation values taught by Kakiuchi using the weighting method taught by Omata et al. for the benefit of being able to accurately detect a compositional change in an image so that a continuous focus can be

achieved on a main object which an operator intends to focus (Omata et al., column 1, line 66 through column 2, line 2).

Consider claim 11, and as applied to claim 7 above, Kakiuchi teaches of detecting focal lengths based on multiple image data, specifically detecting the focal length based on the image data which has the peak contrast value (see claim 1 rationale). However, Kakiuchi does not explicitly teach of a plurality of image detecting areas adjacent to one another.

Omata et al. is similar to Kakiuchi in that Omata et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figures 1 and 2. Omata et al. is further similar in that brightness data from the image sensor can be used for focusing (column 1, lines 45-65).

Omata et al. teach setting a plurality of image detecting areas adjacent to one another in obtained image data (see figure 5, column 3, lines 34-37),

calculating a partial focal length for each image detecting area (See column 3, lines 39-46, column 5, lines 8-18. A focus evaluation value (i.e. partial focal length) is calculated for each image detecting area.),

calculating the reliability of each image detecting area based on the position at which said peak value has been recorded moving across the multiple image data (The reliability of each image detecting area is determined by comparing the image detecting area to the surrounding image detecting areas, column 5, lines 18-44. See figure 6, block g (3,4) is judged reliable and used for focal length detection if the pixels around it

are of the same object distance. This position correlates to the position of the maximum focus evaluation value (i.e. peak value), column 5, lines 32-36.), and

selecting a focal length from a group consisting of said partial focal lengths (column 5, lines 18-44) and at least one given focal length (A predetermined (i.e. given) focal length may be used to detect a depth of field, column 3, line 67 through column 4, line 3.), said focal length selected based on the reliability and the evaluated values of each respective image detecting area (See column 5, lines 18-44. Each image detecting area is used to establish a focus evaluation value, and these values are compared to determine the reliability of the areas and use the appropriate one containing the main subject.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to divide an image into a plurality of image detecting areas adjacent to one another and use the plurality of areas to determine focus values and reliability as taught by Omata et al., with the multiple image data captured by Kakiuchi for the benefit of being able to accurately detect a compositional change in an image so that a continuous focus can be achieved on a main object which an operator intends to focus (Omata et al., column 1, line 66 through column 2, line 2).

Consider claim 11, and as applied to claim 8 above, Kakiuchi teaches of detecting focal lengths based on multiple image data, specifically detecting the focal length based on the image data which has the peak contrast value (see claim 1

rationale). However, Kakiuchi does not explicitly teach of a plurality of image detecting areas adjacent to one another.

Omata et al. teach setting a plurality of image detecting areas adjacent to one another in obtained image data (see figure 5, column 3, lines 34-37),

calculating a partial focal length for each image detecting area (See column 3, lines 39-46, column 5, lines 8-18. A focus evaluation value (i.e. partial focal length) is calculated for each image detecting area.),

calculating the reliability of each image detecting area based on the position at which said peak value has been recorded moving across the multiple image data (The reliability of each image detecting area is determined by comparing the image detecting area to the surrounding image detecting areas, column 5, lines 18-44. See figure 6, block g (3,4) is judged reliable and used for focal length detection if the pixels around it are of the same object distance. This position correlates to the position of the maximum focus evaluation value (i.e. peak value), column 5, lines 32-36.), and

selecting a focal length from a group consisting of said partial focal lengths (column 5, lines 18-44) and at least one given focal length (A predetermined (i.e. given) focal length may be used to detect a depth of field, column 3, line 67 through column 4, line 3.), said focal length selected based on the reliability and the evaluated values of each respective image detecting area (See column 5, lines 18-44. Each image detecting area is used to establish a focus evaluation value, and these values are compared to determine the reliability of the areas and use the appropriate one containing the main subject.).

Consider claim 11, and as applied to claim 9 above, Kakiuchi teaches of detecting focal lengths based on multiple image data, specifically detecting the focal length based on the image data which has the peak contrast value (see claim 1 rationale). However, Kakiuchi does not explicitly teach of a plurality of image detecting areas adjacent to one another.

Omata et al. teach setting a plurality of image detecting areas adjacent to one another in obtained image data (see figure 5, column 3, lines 34-37),

calculating a partial focal length for each image detecting area (See column 3, lines 39-46, column 5, lines 8-18. A focus evaluation value (i.e. partial focal length) is calculated for each image detecting area.),

calculating the reliability of each image detecting area based on the position at which said peak value has been recorded moving across the multiple image data (The reliability of each image detecting area is determined by comparing the image detecting area to the surrounding image detecting areas, column 5, lines 18-44. See figure 6, block g (3,4) is judged reliable and used for focal length detection if the pixels around it are of the same object distance. This position correlates to the position of the maximum focus evaluation value (i.e. peak value), column 5, lines 32-36.), and

selecting a focal length from a group consisting of said partial focal lengths (column 5, lines 18-44) and at least one given focal length (A predetermined (i.e. given) focal length may be used to detect a depth of field, column 3, line 67 through column 4, line 3.), said focal length selected based on the reliability and the evaluated values of

each respective image detecting area (See column 5, lines 18-44. Each image detecting area is used to establish a focus evaluation value, and these values are compared to determine the reliability of the areas and use the appropriate one containing the main subject.).

28. Claim 6(2) is rejected under 35 U.S.C. 103(a) as being unpatentable over Kakiuchi in view of Watanabe et al. as applied to claim 2 above, and further in view of Omata et al.

29. The response to Applicant's arguments, as illustrated above, is hereby incorporated into the rejection of claim 6(2) by reference.

Consider claim 6, and as applied to claim 2 above, Kakiuchi teaches of detecting focal lengths based on multiple image data, specifically detecting the focal length based on the image data which has the peak contrast value (see claim 1 rationale). However, the combination of Kakiuchi and Watanabe et al. does not explicitly teach of a plurality of image detecting areas adjacent to one another.

Omata et al. is similar to Kakiuchi in that Omata et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figures 1 and 2. Omata et al. is further similar in that brightness data from the image sensor can be used for focusing (column 1, lines 45-65).

Omata et al. teach setting a plurality of image detecting areas adjacent to one another in obtained image data (see figure 5, column 3, lines 34-37),

calculating a partial focal length for each image detecting area (See column 3, lines 39-46, column 5, lines 8-18. A focus evaluation value (i.e. partial focal length) is calculated for each image detecting area.),

calculating the reliability of each image detecting area based on the position at which said peak value has been recorded moving across the multiple image data (The reliability of each image detecting area is determined by comparing the image detecting area to the surrounding image detecting areas, column 5, lines 18-44. See figure 6, block g (3,4) is judged reliable and used for focal length detection if the pixels around it are of the same object distance. This position correlates to the position of the maximum focus evaluation value (i.e. peak value), column 5, lines 32-36.), and

selecting a focal length from a group consisting of said partial focal lengths (column 5, lines 18-44) and at least one given focal length (A predetermined (i.e. given) focal length may be used to detect a depth of field, column 3, line 67 through column 4, line 3.), said focal length selected based on the reliability and the evaluated values of each respective image detecting area (See column 5, lines 18-44. Each image detecting area is used to establish a focus evaluation value, and these values are compared to determine the reliability of the areas and use the appropriate one containing the main subject.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to divide an image into a plurality of image detecting areas adjacent to one another and use the plurality of areas to determine focus values and reliability as taught by Omata et al., with the multiple image data captured by the

combination of Kakiuchi and Watanabe et al. for the benefit of being able to accurately detect a compositional change in an image so that a continuous focus can be achieved on a main object which an operator intends to focus (Omata et al., column 1, line 66 through column 2, line 2).

30. Claims 10(8) and 10(9) are rejected under 35 U.S.C. 103(a) as being unpatentable over Kakiuchi in view of Omata et al. as applied to claims 8 and 9 above, and further in view of Watanabe et al.

31. The response to Applicant's arguments, as illustrated above, is hereby incorporated into the rejection of claims 10(8) and 10(9) by reference.

Consider claim 10, and as applied to claim 8 above, the combination of Kakiuchi and Omata et al. does not explicitly teach that the focusing device is provided with an auxiliary light device for emitting light with given color data.

Watanabe et al. is similar to Kakiuchi in that Watanabe et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figure 1. Watanabe et al. is further similar in that focusing conditions are changed using the contrast method (paragraph 0005).

However, Watanabe et al. teach of emitting auxiliary light, paragraph 0072. An auxiliary light (122, figure 1) is used to illuminate the subject when the brightness level is low in order to perform correct auto-focus. The auxiliary light inherently produces

given color data, and illuminates a subject when the brightness is low so that auto-focus image data (i.e. the image data) can be obtained.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to use an auxiliary light as taught by Watanabe et al. in the device for detecting a focal length taught by the combination of Kakiuchi and Omata et al., in order to sustain a high level of focal adjustment accuracy by calculating the correct focus evaluation values in differing image capturing conditions (Watanabe et al., paragraph 0014) and compensate for low lighting conditions (Watanabe et al., paragraph 0072).

Consider claim 10, and as applied to claim 9 above, the combination of Kakiuchi and Omata et al. does not explicitly teach that the focusing device is provided with an auxiliary light device for emitting light with given color data.

Watanabe et al. is similar to Kakiuchi in that Watanabe et al. include a camera, which has a lens system with a driver for changing a focal length, and an image pickup device, see figure 1. Watanabe et al. is further similar in that focusing conditions are changed using the contrast method (paragraph 0005).

However, Watanabe et al. teach of emitting auxiliary light, paragraph 0072. An auxiliary light (122, figure 1) is used to illuminate the subject when the brightness level is low in order to perform correct auto-focus. The auxiliary light inherently produces given color data, and illuminates a subject when the brightness is low so that auto-focus image data (i.e. the image data) can be obtained.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to use an auxiliary light as taught by Watanabe et al. in the device for detecting a focal length taught by the combination of Kakiuchi and Omata et al., in order to sustain a high level of focal adjustment accuracy by calculating the correct focus evaluation values in differing image capturing conditions (Watanabe et al., paragraph 0014) and compensate for low lighting conditions (Watanabe et al., paragraph 0072).

32. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kakiuchi in view of Rosenqvist et al. (US 6,590,612).

33. The response to Applicant's arguments, as illustrated above, is hereby incorporated into the rejection of claim 15 by reference.

Consider claim 15, Kakiuchi teaches:

An image capturing apparatus (figure 1) comprising:

an image pickup device (21),

an optical system (11) for forming an image on said image pickup device (21),

an optical system driver (12) for changing the focal length of said optical system (column 2, lines 61-65), and

an image processor (10) for processing image data output from said image pickup device (column 3, lines 21-24) and controlling said optical system driver (column 2, lines 61-65), wherein:

the image processor (10) is adapted to:

obtain a plurality of image data of each respective color data while changing the focal length of said optical system (A plurality of color data is obtained, including green, magenta, yellow, and cyan data, column 4, lines 12-15, step102, figure 5a. This color data is obtained while changing the focal length in steps 106 and 111 of figures 5B and 5C. See column 5, lines 17-49. Color signals G, Ng, Ye, and Cy are stored in memory when the focal length is changed.), and

calculate a focal length for a respective color data mentioned above by using the peak value of contrast evaluated values calculated from the obtained multiple image data (See column 5, lines 1-7. The AF signal of the color having the highest contrast is used to perform auto-focus (i.e. to calculate a focal length). The data of the color having the highest contrast is obtained from among the multiple image data of all the different colors. See step 105 for choosing which color data to use, and steps 106 and 111 for calculating the focal length. Contrast evaluated values (i.e. AF signals based on contrast) are calculated in steps 109 and 114. In step 115 it is determined whether or not the lens is within a focus allowable range (i.e. whether or not a peak value of contrast evaluated values has been obtained). Movement of the lens is stopped when it is determined that the lens is within a focus allowable range (i.e. at a peak position), column 5, lines 62-65. The focal length corresponds to the peak position calculated in figures 5A-5C, and thus the peak contrast evaluated value.); and

perform image capturing at each focal length that the lens is moved to for each respective color data (See column 4, lines 11-15, column 5, lines 22-25, lines 46-47.

Image data for all the colors is captured and input into memory in step 102, figure 5A, step 108, figure 5B, and step 113, figure 5C.).

However, Kakiuchi does not explicitly teach that a focal length is calculated for each respective color data, or that the image capturing is performed at a focal length having peak contrast for each respective color data.

Rosenqvist et al. similarly teaches a focusing device (figure 2) which, while changing the focal length of said optical system, obtains multiple image data selected from among image data of a plurality of color data (The focal length is changed, and frames for three different colors are “grabbed” and stored. A frame for each color, wherein that color is in the optimal focus position, is then stored and processed. See column 4, lines 60-67, column 5, lines 42-58, column 6, lines 32-38.).

However, in addition to the teachings of Kakiuchi, Rosenqvist et al. teaches that a focal length is calculated for each respective color data (See column 4, lines 60-67. Three color components are grabbed and stored as separate images in synchronization with an autofocus controller. The autofocus system is re-focused between grabs for each color component (i.e. a focal length is calculated for each respective color data), column 5, lines 1-15. An image having an optimal focus (i.e. a correct calculated focal length) is retained and stored for each color component, column 5, lines 42-50.), and that the image capturing is performed at a focal length having peak value for each respective color data (An image having the “highest value of the focus function” (i.e. a focal length having a peak value) is “grabbed” (i.e. captured) and retained for each color component, column 5, lines 42-50.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to calculate separate focal lengths and capture images at said separate focal lengths as taught by Rosenqvist et al. by using the contrast of each color component as taught by Kakiuchi for the benefit of achieving a low-cost system which enables the capture of sharper images by compensating for different wavelengths of captured color components (Rosenqvist et al., column 2, lines 8-32, lines 42-43, column 4, lines 41-67).

34. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kakiuchi in view of Rosenqvist et al., as applied to claim 15 above, and further in view of Yoshida et al.(US Patent 5,189,524).

35. The response to Applicant's arguments, as illustrated above, is hereby incorporated into the rejection of claim 16 by reference.

Consider claim 16 and as applied to claim 15 above, the combination of Kakiuchi and Rosenqvist et al. does not explicitly teach of a warning device for indicating that image capturing is underway.

Yoshida et al. is similar to Kakiuchi in that a camera is capturing image data.

However, in addition to the teachings of the combination of Kakiuchi and Rosenqvist et al., Yoshida et al. teach of a warning device for indicating that image capture is underway (see figures 6a, 6b, and 6c, "REC").

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include an indicator as taught by Yoshida et al. in the image capturing apparatus taught by Kakiuchi for the benefit of eliminating user confusion (Yoshida et al., column 1, lines 56-64).

Conclusion

36. Any rejections made by the Examiner under 35 U.S.C. 112 are hereby removed in view of Applicant's response.

37. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALBERT H. CUTLER whose telephone number is (571)270-1460. The examiner can normally be reached on Mon-Thu (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC

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